IN THE CLAIMS

Claim 1-56 (canceled).

Claim 57 (currently amended): A computer program for performing a method for acquiring data from a polymer array using an array scanner comprising:

scanning a plurality of diverse polymers of known sequence which form a polymer array that is located on a substrate,

wherein each diverse polymer has a different sequence and is on a known, localized area that is smaller than 2.5 x 10^5 microns^2 and the density of the diverse polymers is at least 400 diverse polymers per cm^2;

receiving pixel data of the polymer array from the scanner; and

collecting pixel data of the polymer array.

Claim 58 (previously amended): The computer program of claim 57 wherein the method further comprises issuing commands to move to a scan stage.

Claim 59 (previously amended): The computer program of claim 57 wherein the method further comprises outputting the pixel data to an image data file and displaying the image data.

Claim 60 (previously amended): The computer program of claim 57 wherein the polymers are nucleic acids and the substrate is hybridized with a sample.

Claim 61 (previously amended): The computer program of claim 57 wherein the polymers are peptides.

Claim 62 (canceled)

Claim 63 (previously amended): The computer program of claim 57 wherein the substrate has at least 1000 polymers per cm^2.

Claim 64 (previously amended): The computer program of claim 57 wherein the substrate has at least 10,000 polymers per cm^2.

Claim 65 (currently amended): Computer software comprising:

software that scans a plurality of diverse polymers of known sequence which form an array that is located on a substrate,

wherein each diverse polymer has a different sequence and is on a known, localized area that is smaller than 2.5 x 10^5 microns^2 and the density of the diverse polymers is at least 400 diverse polymers per cm^2;

software that receives pixel data of the polymer array from the scanner; and

software that collects pixel data of the polymer array.

Claim 66 (previously amended): The computer software of claim 65 further comprising software that issues commands to move a scan stage.

Claim 67 (previously amended): The computer software of claim 66 further comprising software that outputs the pixel data to an image data file and displays the image data.

Claim 68 (previously amended): The computer software of claim 65 wherein the polymers are nucleic acids and the substrate is hybridized with a sample.

Claim 69 (previously amended): The computer software of claim 65 wherein the polymers are peptides.

Claim 70 (canceled)

Claim 71 (previously amended): The computer software of claim 65 wherein the substrate has at least 1000 polymers per cm^2.

Claim 72 (previously amended): The computer software of claim 65 wherein the substrate has at least 10,000 polymers per cm^2.

Claim 73 (currently amended): A system for acquiring data from an array of diverse polymer sequences using a polymer an array scanner comprising:

a computer containing a program that implements a plurality of steps, the steps comprising:

scanning a plurality of diverse polymers of known sequence which form an array

that is located on a region of a substrate, wherein each diverse polymer has a different

sequence and is on a <u>known,</u> localized area that is smaller than 2.5 x 10^5 microns^2 <u>and the</u>

<u>density of the diverse polymers is at least 400 diverse polymers per cm^2</u>;

receiving pixel data of the polymer array from the scanner; and

collecting pixel data of the polymer array.

Claim 74 (previously amended): The system of claim 73 wherein the steps

further comprise issuing commands to move a scan stage.

Claim 75 (previously amended): The system of claim 74 wherein the steps

further comprise outputting the pixel data to an image data file and displaying the image

data.

Claim 76 (previously presented): The system of claim 75 wherein the polymers

are nucleic acids and the substrate is hybridized with a sample.

Claim 77 (previously presented): The system of claim 76 wherein the polymers

are peptides.

Claim 78 (currently amended): A computer program for performing a method

comprising:

scanning a plurality of diverse polymer probes of known sequence which form a polymer array to obtain a plurality of intensity data, wherein the polymer array has a plurality of diverse polymer probes of known sequence on a substrate, wherein each diverse polymer probe has a different sequence and occupies a <u>known,</u> localized area that is less than 2.5 x 10^5 microns^2 <u>and the density of the diverse polymers is at least 400 diverse polymers per cm^2</u>, and wherein the array has been contacted with a sample that may contain a target; ~~and~~

determining the positions of probe and target interaction based upon the intensity data of the polymer array; and

collecting pixel data of the polymer array.

Claim 79 (previously amended): The computer program of claim 78 wherein the polymer probes are nucleic acids.

Claim 80 (previously amended): The computer program of claim 78 wherein the polymer probes are oligonucleotides.

Claim 81 (previously amended): The computer program of claim 80 wherein the intensity data reflects the hybridization of the oligonucleotide probes and the target.

Claim 82 (previously amended): The computer program of claim 78 further comprising generating an average intensity based on fluorescence data.

Claim 83 (canceled)

Claim 84 (previously amended): The computer program of claim 78 wherein the substrate has at least 1000 polymer probes per cm^2.

Claim 85 (previously amended): The computer program of claim 78 wherein the substrate has at least 10,000 polymer probes per cm^2.

Claim 86 (currently amended): Computer software comprising:

software that scans a plurality of diverse polymer probes of known sequence which form an array on a substrate, wherein each diverse polymer probe has a different sequence and occupies a <u>known,</u> localized area that is less than 2.5 x 10^5 microns^2 <u>and the density of the diverse polymers is at least 400 diverse polymers per cm^2</u>, and wherein the array has been contacted with a sample that may contain a target; and

software that determines the positions of probe and target interaction and collects pixel data.

Claim 87 (previously amended): The computer software of claim 86 wherein the polymer probes are nucleic acids.

Claim 88 (previously amended): The computer software of claim 86 wherein the polymer probes are oligonucleotides.

Claim 89 (previously amended): The computer software of claim 88 wherein the intensity data reflects the hybridization of the oligonucleotide probes and the target.

Claim 90 (previously amended): The computer software of claim 86 wherein intensity data are fluorescence data.

Claim 91 (canceled)

Claim 92 (previously amended): The computer software of claim 86 wherein the substrate has at least 1000 polymer probes per cm^2.

Claim 93 (previously amended): The computer software of claim 86 wherein the substrate has at least 10,000 polymer probes per cm^2.

Claim 94 (currently amended): A system for acquiring data from an array having diverse polymer sequences using ~~a polymer~~ an array scanner comprising:

a computer containing a program that implements a plurality of steps, the steps comprising:

scanning a plurality of diverse polymers of known sequence which form an array on a substrate, wherein each diverse polymer has a different sequence and occupies a known, localized area that is less than 2.5 x 10^5 microns^2 and the density of the diverse polymers is at least 400 diverse polymers per cm^2, and wherein the array has been contacted with a sample that may contain a target; and

determining the positions of probe and target interaction based upon fluorescent

intensity data of the polymer array; and

collecting pixel data.

Claim 95 (previously presented): The system of claim 94 wherein the polymer

probes are nucleic acids.

Claim 96 (previously presented): The system of claim 95 wherein the polymer

probes are oligonucleotides.

Claim 97 (previously presented): The system of claim 96 wherein the intensity

data reflects the hybridization of the oligonucleotide probes and the target.

Claim 98 (previously amended): The system of claim 97 further comprising

generating an average intensity based on fluorescence data.

Claim 99 (canceled)

Claim 100 (previously presented): The system of claim 94 wherein the substrate

has at least 1000 polymer probes per cm^2.

Claim 101 (previously presented): The system of claim 94 wherein the substrate

has at least 10,000 polymer probes per cm^2.

Claim 102 (currently amended): A system for scanning a polymer array comprising:

a scanning optical device;

a polymer array having diverse polymers of known sequence on a substrate wherein each diverse polymer has a different sequence and is in a <u>known,</u> localized area that is smaller than 2.5×10^5 microns^2 <u>and the density of the diverse polymers is at least 400 diverse polymers per cm^2</u>;

a computer containing a program that implements a plurality of steps, the steps comprising collecting fluorescent intensity data from less than ½ of each of the localized areas from the polymer array and generating an average intensity for at least one of said localized areas from the polymer array.

Claim 103 (previously presented): The system of claim 102 wherein the polymer array is a nucleic acid probe array.

Claim 104 (previously presented): The system of claim 103 wherein the polymer array is a peptide array.

Claim 105 (canceled)

Claim 106 (previously presented): The system of claim 105 wherein the polymer array has at least 1000 polymers per cm^2.

Claim 107 (previously presented): The system of claim 106 wherein the polymer array has at least 10,000 polymers per cm^2.

Claim 108 (currently amended): A computer program for acquiring data from a polymer array, comprising:

scanning a plurality of diverse polymers of known sequence which form an array on a substrate, wherein each diverse polymer has a different sequence and is on a known, localized area that is smaller than 2.5×10^5 microns^2 and the density of the diverse polymers is at least 400 diverse polymers per cm^2;

acquiring data from the polymer array which indicate binding between the polymer on the substrate and a detectable target polymer; and

collecting pixel data of the polymer array.

Claim 109 (previously amended): The computer program of claim 108 wherein the target polymer is a polypeptide.

Claim 110 (canceled)

Claim 111 (previously amended): The computer program of claim 110 wherein the substrate has at least 1000 probe polymers per cm^2.

Claim 112 (previously amended): The computer program of claim 111 wherein the substrate has at least 10,000 probe polymers per cm^2.

Claim 113 (previously amended): The computer program of claim 108 wherein the target polymer is a nucleic acid.

Claim 114 (canceled)

Claim 115 (previously amended): The computer program of claim 114 wherein the substrate has at least 1000 polymers per cm^2.

Claim 116 (previously amended): The computer program of claim 115 wherein the substrate has at least 10,000 polymers per cm^2.

Claim 117 (previously amended): The computer program of claim 108 wherein the data are fluorescence intensities.

Claim 118 (previously amended): The computer program of claim 108 wherein the substrate is an impermeable substrate having at least 1000 polymers/cm^2.

Claim 119 (previously amended): The computer program of claim 108 wherein each of the localized areas is smaller than 1×10^4 microns^2.

Claim 120 (currently amended): A computer software comprising:

software that scans a plurality of diverse nucleic acids or polypeptides of known sequence which form an array on a substrate, wherein each diverse nucleic acid or polypeptide has a different sequence and is on a known, localized area that is smaller than 2.5×10^5 microns^2 and the density of the diverse polymers is at least 400 diverse polymers per cm^2; and

software that acquires data from the array which indicate binding between the nucleic acid or polypeptide on the substrate and a detectable target polymer and collects pixel data of the array.

Claim 121 (canceled).

Claim 122 (canceled)

Claim 123 (previously amended): The computer software of claim 122 wherein the substrate has at least 1000 nucleic acids or polypeptides per cm^2.

Claim 124 (previously amended): The computer software of claim 123 wherein the substrate has at least 10,000 nucleic acids or polypeptides per cm^2.

Claim 125 (previously amended): The computer software of claim 120 wherein the target is a nucleic acid.

Claims 126-128 (canceled).

Claim 129 (previously amended): The computer software of claim 120 wherein the data are fluorescence intensities.

Claim 130 (previously amended): The computer software of claim 120 wherein the substrate is an impermeable substrate having at least 1000 nucleic acids or polypeptides/cm^2.

Claim 131 (previously amended): The computer software of claim 120 wherein each of the localized areas is smaller than 1×10^4 microns^2.

Claim 132 (currently amended): A computer program for acquiring data from a nucleic acid or polypeptide array, comprising:

scanning a plurality of diverse nucleic acids or polypeptides of known or detectable sequence which form an array on a substrate, each diverse nucleic acid or polypeptide having a different sequence and is on a known, localized area that is smaller than 2.5×10^5 microns^2 and the density of the diverse polymers is at least 400 diverse polymers per cm^2; and

acquiring data from the array which indicate binding between the nucleic acids or polypeptides on the substrate and a detectable target; and

collecting pixel data of the array.

Claim 133 (canceled).

Claim 134 (canceled)

Claim 135 (previously amended): The computer program of claim 110 wherein the substrate has at least 1000 nucleic acids or polypeptides per cm^2.

Claim 136 (previously amended): The computer program of claim 111 wherein the substrate has at least 10,000 nucleic acids or polypeptides per cm^2.

Claims 137-140 (canceled).

Claim 141 (previously amended): The computer program of claim 108 wherein the data are fluorescence intensities.

Claim 142 (currently amended): The computer program of claim 108 wherein the substrate is an impermeable substrate having at least 1000 nucleic acids or polypeptides polymers/ per cm^2.

Claim 143 (previously amended): The computer program of claim 108 wherein each of the localized areas is smaller than 1 x 10^4 microns^2.

Claim 144 (currently amended): A system for controlling a scanner for a nucleic acid array comprising:

a computer containing a program that implements a plurality of steps, the steps comprising:

scanning a plurality of diverse nucleic acid polymers of known or detectable sequence on a substrate, each diverse nucleic acid polymer having a different sequence and on a known, localized area that is smaller than 2.5 x 10^5 microns^2 and the density of the diverse polymers is at least 400 diverse polymers per cm^2; and

acquiring fluorescent data from the nucleic acid array which indicate binding between the nucleic acid on the substrate and a detectable target; and

collecting pixel data.

Claims 145-148 (canceled).

Claim 149 (previously amended): The system of claim 144 wherein the target is nucleic acid.

Claim 150 (canceled)

Claim 151 (previously amended): The system of claim 144 wherein the substrate has at least 1000 nucleic acids per cm^2.

Claim 152 (previously amended): The system of claim 144 wherein the substrate has at least 10,000 nucleic acids per cm^2.

Claim 153 (canceled).

Claim 154 (previously amended): The system of claim 144 wherein the substrate is an impermeable substrate having at least 1000 nucleic acids/cm^2.

Claim 155 (canceled).

Claim 156 (previously presented): The computer program of claim 60 wherein the pixel data is from fluorescent intensity data.

Claim 157 (previously presented): The computer software of claim 68 wherein the pixel data is from fluorescent intensity data.

Claim 158 (previously presented): The system of claim 76 wherein the pixel data is from fluorescent intensity data.

Claim 159 (previously presented): The computer program of claim 79 wherein the intensity data is fluorescent intensity.

Claim 160 (previously presented): The computer software of claim 87 wherein the pixel data is from fluorescent intensity data.

Claim 161 (previously presented): The computer software of claim 120 wherein the pixel data is from fluorescent intensity data.

Claim 162 (previously presented): The computer program of claim 132 wherein the pixel data is from fluorescent intensity data.